

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status and Critical Habitats for Two Fish Species in Ash Meadows, Nevada

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines the Ash Meadows speckled dace and the Ash Meadows Amargosa pupfish to be Endangered species and designates their Critical Habitats. This action is being taken because these species are restricted to the Ash Meadows region and ground water basin in Nye County, Nevada, where they are facing intensifying threats. Imminent land development for housing subdivisions, clearing of land for road construction and agricultural purposes, pumping of ground water, and diversion of surface flows threaten the integrity of the species' habitat and therefore their survival. This action will result in the permanent placement of protective measures imposed by the January 5, 1982, emergency listing of these species as Endangered.

DATES: This action is effective on September 2, 1982. This early effective date is necessary because the emergency rule expires on September 2, 1983.

ADDRESSES: Questions concerning this action may be addressed to the Regional Director, U.S. Fish and Wildlife Service, Lloyd 500 Building, Suite 1692, 500 NE. Multnomah Street, Portland, Oregon 97232.

FOR FURTHER INFORMATION CONTACT: Mr. Sanford R. Wilbur, U.S. Fish and Wildlife Service, Lloyd 500 Building, Suite 1692, 500 NE. Multnomah Street, Portland, Oregon 97232 (503/231-6131) or Mr. John L. Spinks, Jr., Chief, Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (703/235-2771).

SUPPLEMENTARY INFORMATION:**Background**

The Ash Meadows Amargosa pupfish (*Cyprinodon nevadensis mionectes*) and the Ash Meadows speckled dace (*Rhinichthys osculus nevadensis*) are found only in the Ash Meadows basin and require the integrity of its physical environment and maintenance of spring, surface, and subsurface flows for their survival. The Ash Meadows speckled

dace was described as a full species (*Rhinichthys nevadensis*) by Gilbert (1983) based on material collected in 1891 (La Rivers, 1962). It was later designated a subspecies of *Rhinichthys osculus* by Hubbs and Miller (1948). *Cyprinodon nevadensis mionectes* was described by Miller (1948) based on specimens collected in 1937 and 1942.

An emergency rule published in the *Federal Register* (47 FR 19995) on May 10, 1982, listed these fishes as Endangered for a period lasting 240 days, expiring on January 5, 1983. A second emergency listing and a proposal of Endangered status and Critical Habitats for these two fish species under normal listing procedures were published concurrently on January 5, 1983 (48 FR 608). Development of the proposal was delayed as a result of uncertainties concerning changes in listing procedures specified by the 1982 Amendments to the Endangered Species Act.

Public hearings on the proposal to list and to designate Critical Habitats for the Ash Meadows Amargosa pupfish and the Ash Meadows speckled dace were held in Las Vegas, Nevada, on February 11, 1983, and in Amargosa, Nevada, on May 26, 1983. The testimony recorded at those hearings and all written comments received by June 2, 1983, are part of the public record and have been carefully considered in the drafting of this final rule.

The Ash Meadows region is a unique and diverse desert wetland located east of the Amargosa River. These wetlands are maintained by flow from several dozen springs and seeps that are fed by an extensive ground water system extending more than 167 km (104 miles) northeast of Ash Meadows. Hundreds of plant and animal species, many of them endemic, are associated with these wetlands and depend upon them for survival.

The Ash Meadows Amargosa pupfish and Ash Meadows speckled dace are restricted to the large warmwater springs and related outflows of Ash Meadows. The pupfish inhabits the pools and outflows of Fairbanks, Rogers, Longstreet, Jack Rabbit, Big, and Point of Rocks Springs; Crystal Pool; three unnamed springs just southeast of Longstreet Spring; and the two westernmost springs of the Bradford Springs group. These springs are at elevations ranging from 655 to 700 m (2149 to 2297 feet) and are generally oriented along an imaginary line running 16 km (10 miles) from Fairbanks Spring to Big Spring. Water temperatures of the springs are consistently 24° to 30° C (75° to 86°F). Flowing water of spring outflows is preferred by the speckled

dace. Although formerly inhabiting much of the interconnected surface drainage in Ash Meadows, dace populations have been severely reduced and are now restricted to springs and outflows of Jack Rabbit Spring, Big Spring, and the two westernmost springs of the Bradford Springs group. A number of exotic species, such as mosquitofish and black mollies, have been introduced to these springs and compete with the native fishes.

Many other plant and animal species that are candidates for listing as Endangered or Threatened are endemic to Ash Meadows. The Service proposed the Ash Meadows turban snail (*Fluminicola erythropoma*) as Threatened on April 28, 1976 (41 FR 17742). That proposal was withdrawn on December 10, 1979 (44 FR 70796), as a result of the 1978 amendments to the Endangered Species Act. Current evidence indicates that this species, as proposed, actually comprised more than one species. The springs and streams in Ash Meadows have an extraordinarily diverse freshwater mollusk fauna, which is currently being studied by Dr. Dwight Taylor of Tiburon, California. Of special interest is the presence of two species flocks or complexes of snails that are found within a 5-mile radius in Ash Meadows and give Ash Meadows the highest concentration of endemic species in the United States. Most of the mollusk species have not been scientifically described and named.

Two endemic Ash Meadows fishes, the Devil's Hole pupfish (*Cyprinodon diabolis*) and the Warm Springs pupfish (*Cyprinodon nevadensis pectoralis*), are already listed as Endangered. The Devil's Hole pupfish's natural distribution is restricted to Devil's Hole, a disjunct portion of Death Valley National Monument. The Warm Springs pupfish occurs only in small nearby springs at an elevation of about 710 m (2330 feet).

The Point of Rocks Springs naucorid (*Ambrysus amargosus*) is an insect that has been recorded living only in Point of Rocks Springs.

A general notice of review on candidate plants in the December 15, 1980, *Federal Register* (45 FR 82479) included seven plant taxa that are restricted to Ash Meadows. These taxa and their edaphic associations are as follows: The spring-loving centaury (*Centaureum namophilum* var. *namophilum*) and Ash Meadows vesia (*Ivesia eremica*) are restricted to wet clay soils of spring areas ivesia and stream banks; the Amargosa niterwort (*Nitrophila mohavensis*) is found only on undisturbed, salt-encrusted, heavy

alkaline mud flats in the Carson Slough area in Inyo County, California; the Ash Meadows gum plant (*Grindelia fraxinopratensis*) occurs in small populations in relatively undistributed moist to wet clay soils of spring areas and stream banks, and is often associated with the spring-loving centaury; the Ash Meadows blazing star (*Mentzelia leucophylla*) is associated with desert washes in coarse-grained, water-sorted, alkaline soils; the Ash Meadows milk-vetch (*Astragalus phoenix*) occurs in washes and on flats and low knolls in fine-grained, clay-like soils; and corrugated sunray (*Enceliopsis nudicaulis* var. *corrugatum*) occupies strongly alkaline and often poorly drained soils in several localities. An additional species in that review, the tecopa birds-beak (*Cordylanthus tecopensis*), has a wider but still restricted distribution that includes Ash Meadows.

Early homesteaders attempted to farm Ash Meadows using the free-flowing water from the springs for irrigation. These efforts failed because the salty, clay soils were not suitable for crops.

Agricultural practices in the late 1960's and early 1970's resulted in large tracts of land being plowed and the installation of ground water pumps and diversion ditches to support a cattle-feed operation. These practices resulted in the destruction of many populations of plants and animals and their wetland habitats by alteration of the land surface and lowering of the water table. In 1976, the Supreme Court limited the amount of ground water pumping in Ash Meadows to ensure sufficient water levels in the only known habitat of the Endangered Devil's Hole pupfish. The agricultural interests in Ash Meadows sold approximately 36 square km (14 square miles) of land to a real estate developer, Preferred Equities Corporation (PEC), in 1977.

While the Bureau of Land Management (BLM) is the principal landowner in Ash Meadows, PEC owns most of the surface water rights, which are currently designated for municipal use. Ground water pumping would be required to develop and support municipal and agricultural activities.

The initial phase of construction, when completed, would result in the destruction of Crystal Pool, Point of Rocks and Jack Rabbit Springs, and would possibly lower the level of other springs by ground water pumping. PEC's activities have already substantially altered surface flows and spring hole morphometry at these sites. The amount of land that would be altered for housing is unknown. PEC has recently constructed a multi-land road

connecting Ash Meadows at Point of Rocks Spring with Pahump Valley, a connecting section of road (2 miles long and 80 feet wide) north of Jack Rabbit Spring, and a new road (1.5 miles long and 30 feet wide) east of Crystal Pool. In addition, approximately 1,000 acres of cotton have been planted west of Point of Rocks Spring.

Summary of Comments and Recommendations

Comments received through June 2, 1983, on the proposed listing of these 2 fishes are summarized below. Comments were received from 50 parties, including individuals, organizations, and government agencies. Twelve of these parties presented comments for the record at the first public hearing, and 13 parties submitted comments at the second public hearing. Comments by 8 individuals on the first emergency listing that also addressed final listing are included in this summary of comments.

The Nevada Legislature Federal Regulation Review Committee expressed concern about private property rights in Ash Meadows and that the proposed listings would create a *de facto* wildlife refuge and preclude development of adjacent private lands. The Service responds that Critical Habitat designation does not establish a *de facto* wildlife refuge or mandate wilderness-like management restrictions. Many activities can take place within Critical Habitat areas without being consistent with the conservation of Endangered species. Moreover, Critical Habitat designations are required, in most cases, to accompany the listing of species under the Act and serve as official notification to Federal agencies that their responsibilities under Section 7 of the Act are applicable in a certain area.

The Nevada Department of Wildlife supported the proposed rule on the two fishes and submitted status reports based on their recent field surveys of these species. These reports verify the distributional data and general assessment of threats and population decline presented in the proposed rule on these species. The reports also recommend that these species' status as "protected" under State law be changed to "endangered." The report on the Ash Meadows speckled dace includes populations outside Ash Meadows in the subspecies *Rhynchithys osculus nevadensis*. The Service, however, follows the treatment of this species published in the scientific literature which recognizes only those populations within Ash Meadows as belonging to that subspecies. The reports also

emphasize the potential of Ash Meadows as habitat for migratory waterfowl and upland game.

The Nye County Department of Planning presented extensive comments on the proposed rule that will be addressed individually. First, the Department commented that PEC's lands are privately owned and that they are not under Federal jurisdiction. The Service responds that the Endangered Species Act of 1973, as amended, only precludes Federal agencies from authorizing, funding, or carrying out activities that are likely to jeopardize the continued existence of a listed species or adversely modify its Critical Habitat. Unless a proposed private action requires such Federal approval or funding, it would not be precluded by Section 7 of the Act. The taking prohibitions in Section 9, however, are not so limited as to require a Federal nexus, and could apply to purely private actions that result in the taking of an Endangered species.

The Nye County Department of Planning and one individual cited the abundance of pupfish in some springs and questioned the designation as Endangered of a species existing in such numbers. Section 3 of the Act defines "Endangered species" as "any species which is in danger of extinction throughout all or a significant portion of its range." The Ash Meadows Amargosa pupfish is in danger of extinction throughout a significant portion of its range, which is very small. Its overall population numbers are small as well.

The Nye County Department of Planning and Mr. Jack Soules, President of PEC, commented that the Service had not completed an economic analysis of the proposed listing and Critical Habitat designation for the two fishes. Mr. R. Trent McAuliffe of American Borate Company requested that a study of the economic impacts of the listings be made. The Service replies that the 1982 amendments to the Act require that determinations to list species as Threatened or Endangered be based solely on the best available scientific and commercial information on the species. Economic impacts are not allowed to be considered in making a listing determination. The Act specifies, however, that the economic impact of designating a particular area as Critical Habitat must be considered. The Service accordingly has prepared an economic analysis of the areas determined in this rule to be Critical Habitat.

The Nye County Department of Planning also questioned whether some engineering solution might provide sufficient water for fish habitat and, at

the same time, provide sufficient water flow for PEC's development. The Service recognizes that in many cases engineering modifications can reduce the impact of construction projects on wild plant and animal populations. The Service, however, believes that the water demand that would be created by PEC's proposed development would place far greater stress on native fish populations than could be alleviated by engineering procedures.

The Nye County Department of Planning commented that the Service had not substantiated the threat of PEC's planned development to the two fishes. In a related comment, Mr. Jack Soules stated that in no instance do PEC's water permits exceed free spring flows. The Service responds that its evaluation of these threats is based on modifications of springs and outflows observed by Service personnel. The Service's assessment of future threats if development were to proceed is based on PEC's published brochures and the projected water demands of a development of the magnitude indicated by PEC's plans.

The Nye County Department of Planning further commented that past human practices have increased fish habitat in some areas in Ash Meadows as well as reduced it. The Service responds that the *net* severe loss of habitat for the two fishes has been well documented by Service, State, and university biologists.

The Nye County Department of Planning questioned the Service's statement in the proposed rule that Ash Meadows' terrestrial habitats were as fragile as its aquatic habitats. The Service responds that this statement was included in background information on other species in Ash Meadows that are candidates for listing and did not necessarily refer to the fishes then proposed as Endangered. The Service notes that desert habitats in general are fragile and that all the candidate plants in Ash Meadows are dependent on ground water flows that would be disrupted a development of the magnitude proposed by PEC.

The Nye County Department of Planning commented that the Service was incorrect in its assertion that PEC's plans call for direct modification of spring habitat because in most cases these springs are scheduled for inclusion in park or open areas. The Service responds that these springs and outflows would still be modified, and that it cannot be assured that inclusion of these modified springs in park areas would be adequate to ensure that these areas persist as appropriate habitat for the two fishes.

The Nye County Department of Planning also questioned the Service's statements on the nature of the Ash Meadows ground water system and the effect of pumping on ground water levels. The Service has based its evaluation of these matters on Geological Professional Paper 927: "Effect of Groundwater Pumping on Desert Pupfish Habitats in Ash Meadow, Nye County, Nevada" (Dudley and Larson, 1976).

In addition, the Nye County Department of Planning and Mr. Jack Soules questioned the Service's statement that a portion of PEC's planned development is already precluded by the extent of PEC's water ownership. The Service responds that this statement is based on a comparison of projections of water needed by PEC's planned development with the amount of water rights currently held by PEC.

The Nye County Department of Planning commented that the Service's stated intention to use, if necessary, the protective provisions of Section 9 of the Act to protect these fishes constituted a lack of responsiveness on the part of the Service to a mediated solution. The Service replies that the stated applicability of Section 9 was necessary to inform the public about potential liability under the Endangered Species Act that may result from ongoing activities modifying spring and stream habitat. The Service is required by law to enforce the provisions of the Act and that statement in the proposed rule merely reflected that obligation.

The Nye County Department of Planning commented that the Service has not coordinated to a significant extent with other Federal agencies and local and private interests. The Service replies that it has solicited input from other Federal agencies, State and local governments, and private interests through the holding of two public hearings and associated comment periods on the proposed rule. Moreover, the Service has had extensive discussions with the Bureau of Land Management regarding conservation alternatives for the two fish.

The Nye County Department of Planning and several other parties commented on a possible land exchange as a means of bringing Ash Meadows under public ownership and protection. The Service notes that such an exchange is an issue separate from the determination of Endangered status and Critical Habitats for the two fishes. Designation of Endangered or Threatened species must be based on the best available information concerning the threats to their existence. To date, extensive efforts to reach

agreement on an exchange have failed, so the Service is warranted in considering the significant threats to the habitat of these two fishes.

The Nye County Board of Commissioners requested the Service to lift its "240-day moratorium in place at Ash Meadows." The Service assumes that the Commissioners refer to the 240 days duration of the emergency rule that listed the two fishes and designated their Critical Habitats. That rule does not constitute a moratorium on all development in Ash Meadows. Many actions that would not result in the taking of these species could take place without violation of the Act.

Mr. Jack Soules of PEC commented that the Nevada Water Resources Division ordered flumes installed at the springs on which PEC held water permits. He further stated that the construction required to install these devices did not appear to harm pupfish populations. The Service notes that these disturbing activities harm native fish populations by making the habitat more suitable for their exotic competitors and by forming barriers to recruitment of individuals from downstream habitats into the spring pools. The Service also observes that the extent of habitat damage to the spring pools was greater than that required to install the measuring devices.

Mr. Soules commented that PEC had sustained monetary loss and loss of use of its property as a result from the emergency listings of the fishes. While acknowledging that some economic loss may occur, the Service responds that these listings prohibit only those activities that would result in the taking of any of the two fishes. The Service offered PEC some alternatives that would have allowed initial phases of construction to proceed without causing further taking of any of the two fishes. These alternatives included boundary zones of specified dimensions around spring and stream habitat and stipulations that water not be removed from springs or streams to an extent that would detrimentally affect the two fishes. Mr. Soules further commented that economic effect should be a serious consideration in these listings. The Service responds that the 1982 amendments to the Act clearly state that listings should be based solely on the best available scientific and commercial information and that economic considerations should not affect listing decisions. Economic impacts, however, must be considered when Critical Habitat is designated. The Service has prepared an economic analysis of the

designation of the two fishes' Critical Habitats, as mentioned earlier in this summary of comments.

Mr. Soules stated that he opposed the listing as proposed and that the listing of Endangered species in Ash Meadows should be limited to populations on public land. The Service responds that the provisions of the Act apply to private as well as public lands and that, in the case of the two fishes covered by this rule, the vast majority of their habitat is located on private lands. Protecting only those populations on public land would not be sufficient to ensure the survival of these species and thus would not be consistent with the requirements of the Act.

Comments in support of the listing of the two fishes were submitted by 15 organizations. These organizations are the Desert Fishes Council, the American Society of Ichthyologists and Herpetologists, Friends of Wildlife, the Toiyabe Chapter of the Sierra Club, the Las Vegas Group of the Sierra Club, Nevada Endangered and Threatened Plant Workshop, Elsa Wild Animal Appeal, Defenders of Wildlife, Northern Nevada Native Plant Society, Ecology Center of Southern California, Western Division of the American Fisheries Society, Nevada Wildlife Federation, National Wildlife Federation, and Citizen Alert. The comment from the Elsa Wild Animal Appeal indicated that the organization had collected over 500 signatures in support of the listing. The comments from the Desert Fishes Council noted that its members had witnessed the continuing decline of Ash Meadows' native fishes.

Thirty-two comments in favor of the listing were submitted by individuals. One of these comments included the names of 46 additional individuals who were reported to support the listing.

Several organizations and individuals commented that the proposed Critical Habitats were not large enough to conserve the fishes. These comments were mainly based on the influence that ground water withdrawal in the aquifer may have on the fishes. The Service recognizes the need for stable ground water levels in the aquifer, but finds that a large area cannot be designated as Critical Habitat within the qualifications set by the Act. The Service notes, however, that the protective provisions provided by the Act also apply to activities taking place outside of the Critical Habitat if those activities result in the taking of a listed fish, or, in the case of Section 7, if Federal activities may affect a listed fish.

Several comments pointed out the existence and need for protection of other unique species and habitats in Ash

Meadows besides the two fishes. The Service is aware of these endemic plant, insect, and mollusk species and is currently preparing documents to propose Endangered or Threatened status for them.

The Defenders of Wildlife urged the Service to require the Bureau of Land Management to consult with the Service with regard to a land exchange with PEC. The Service responds that it cannot force consultation on a Federal agency if the agency does not request it. Moreover, it would be premature to initiate consultation at this time since there is not a concrete proposal that has developed regarding a land exchange that could be the focus of consultation.

One individual commented that careful management will be required to save the two fishes and that PEC's development will, if completed, cause the fishes' extinction. That individual also noted that these fishes are of exceptional value to technology because of their abilities to exist in extreme conditions of temperature and salinity.

One individual commented that the observed effect of ground water pumping on Devil's Hole in the past demonstrates the effect that renewed pumping will have on the spring habitat of the two fishes.

Two individuals commented that water supplies would not be adequate to ensure the future of the two fishes if PEC's planned development were built.

One individual commented that one Ash Meadows native fish, the Ash Meadows killifish, is already extinct and that the two fishes that are subjects of this rule have declined greatly in distribution and abundance. This individual also commented that the Ash Meadows speckled dace is difficult to census because of its nocturnal habits and therefore local extinctions might occur before conservation measures can be taken.

Two individuals commented that they had witnessed private development in Ash Meadows and the resulting destruction of habitat and decline in native fish populations.

Mr. Trent McAuliffe of American Borate Company requested that there be a 30- to 60-day extension of the public comment period on the proposal and that a public workshop be held on the proposal. Two additional individuals commented that the public was allowed little opportunity for input on the proposal, and one of these individuals requested an extension of the comment period. The Service responds that a public hearing, if requested within 45 days of the date of the proposal, and a 60-day comment period on a listing proposal are required by the Act. In the

case of the proposal on the two fishes, the Service has exceeded these requirements by holding two public hearings and accepting public comments for periods exceeding 145 days.

Mr. McAuliffe also requested that areas outside of the Critical Habitats that will require management considerations be described. The Service responds that only those activities that result in the taking of any of the two fishes would be prohibited under Section 9 of the Act. Such proscribed activities could include the physical destruction of the fishes' spring habitats and their associated riparian vegetation as well as pumping of ground water to an extent that spring levels are drawn down or their flows reduced, and such reduction results in the death or actual injury of a listed species.

Two individuals questioned why the two fishes, which are recognized as subspecies, should be protected when the ranges of the biological species of which they are members are large. The Service responds that the Act requires Federal agencies to seek to conserve Endangered and Threatened species, and that the Act's definition of "species" includes subspecies and vertebrate populations.

One individual commented at the second public hearing that some interested persons could not attend the hearing. The Service notes that written comments were accepted at the public hearing and that the proposal and hearing notice identified the comment periods and the office to which written comments could be submitted.

One individual suggested that listings be based on a vote by local residents. The Service responds that the Act requires that listings be based on the best available scientific and commercial information and that responsibility for listing determinations on freshwater fishes has been assigned to the Service.

One individual suggested that the Department of the Interior use the power of eminent domain to condemn and purchase PEC's holdings in Ash Meadows. The Service responds that it prefers not to employ these powers while alternative means exist for preserving these fishes and their habitat.

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act of 1973, as amended, provides for a review of the five factors below when listing (or reclassifying or delisting) a species:

A. The present or threatened destruction, modification, or curtailment of its habitat or range;

B. Overutilization for commercial, recreational, scientific, or educational purposes;

C. Disease or predation;

D. Inadequacy of existing regulatory mechanisms; and

E. Other natural or manmade factors affecting its continued existence.

On January 5, 1983 (48 FR 617-625), the Fish and Wildlife Service proposed that the Ash Meadows Amargosa pupfish and the Ash Meadows speckled dace be listed as Endangered species. The proposal included a summary of the factors thought to be contributing to the likelihood that these species are Endangered, specified the prohibitions that would be applicable if such a determination were made, and solicited comments, suggestions, objections, and factual information from any interested person. Based upon careful analysis of all public comments, testimony at the public hearings, and all other available pertinent information, the Service believes that summary remains valid, as reprinted below:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The Ash Meadows Amargosa pupfish and the Ash Meadows speckled dace are endemic to the Ash Meadows basin and depend upon the integrity of this fragile ecosystem for their survival. These species require undisturbed flows from the extensive Ash Meadows basin aquifer. The imminent threat to their existence is the proposed development of Ash Meadows by PEC into a residential, recreational, industrial, and agricultural community. Construction activities would clear essential habitat, directly extirpate populations of these fishes, and alter surface drainage patterns. Human habitation would require great quantities of potable water. Utilization of surface outflows from springs and pumping of the aquifer would reduce or eliminate surface flows, lower the water table, and interfere with ground water recharge, which would destroy down-gradient wetlands.

Diversion of spring outflows and pumping of spring holes and ground water to provide water for the proposed development would destroy essential habitat of the Ash Meadows speckled dace and Ash Meadows Amargosa pupfish. Since all springs in this aquifer are intricately connected, drawdown at one location would affect levels of many other springs. In addition, such alteration of surface flows would prevent migration to other suitable habitats and therefore prevent natural expansion of range or recolonization by these species. To date, the outflow channels of Crystal Pool and King Pool

(Point of Rocks Spring) have been modified to increase flows, resulting in the lowering of pool levels 1-1.5 feet and consequently decreasing riparian habitat. A significant area of land has already been altered by road construction in the vicinity of Crystal Pool and Point of Rocks and Jack Rabbit Springs.

Initial construction activities in late spring and summer of 1981 severely altered the watercourses of two springs (Point of Rocks and Bradford) and related spring hole morphometry; these activities severely reduced the populations of the Ash Meadows speckled dace and Ash Meadows Amargosa pupfish in Bradford Springs. Recent excavation of Fairbanks Spring by heavy equipment has apparently eliminated all but one pupfish.

Recent construction activities in Ash Meadows have continued the destruction of fish habitat that began with early agricultural activities. The Ash Meadows Amargosa pupfish has been extirpated in Bole, Deep, and Forest Springs. The Ash Meadows speckled dace has been extirpated from Forest, Fairbanks, Rogers, Longstreet, Tubbs, and Point of Rocks Springs, the easternmost spring of the Bradford Springs group, and Crystal Pool. The ranges of both the pupfish and the dace have been reduced from 1 mile to about 200 yards in the Bradford Springs outflow and from 3 miles to .5 mile in the Big Springs outflow. The range of the pupfish has been reduced from 6 miles to .5 mile of the Point of Rocks Springs outflow and from 2,000 acres to about .5 acre in the area of Fairbanks, Rogers, and Longstreet Springs. Dace and pupfish populations were temporarily extirpated from Jack Rabbit Spring when the spring pool was pumped dry. Both the dace and pupfish populations are much reduced in most of the limited habitat that they still occupy. Both the pupfish and the dace have been eliminated from Carson Slough where draining, plowing, and mining have eliminated the fish habitat.

PEC's long-term development plans call for direct alteration of many of these springs with construction to progress in three phases in the following areas: Phase I—Crystal Pool; Phase II—Point of Rocks Spring; Phase III—Fairbanks Spring complex. The Nye County Commission has already approved Phases I and II, and work has begun. Further, PEC, as principal owner of water rights, has made application to the State of Nevada to divert water from many of the other Ash Meadows springs, which will destroy more riparian habitat. Ground water pumping may seriously deplete water levels

(directly and indirectly) upon which the fish species depend. In the past, pumping of ground water from nearby wells for agriculture has lowered the water level in Devil's Hole in Ash Meadows, which caused a severe decline in the population of the Endangered Devil's Hole pupfish; continued pumping could have caused the extinction of the species. In 1978, the U.S. Supreme Court ruled (*United States vs. Cappaert et al.*) that a minimum water level must be maintained to protect the Devil's Hole pupfish. Devil's Hole is the most sensitive spring in Ash Meadows, but all of the springs appear to be interconnected. The impact of ground water pumping from wells south of Devil's Hole appears to be greater than from those located in the north. Because agricultural and municipal activities require large volumes of water, and pumping of ground water from the northern areas may be necessary to supplement flows from the south, it is expected that the proposed development by PEC will create a demand for water throughout Ash Meadows.

Introduction of exotic fishes and other aquatic species that compete with or prey upon native species have caused the extinction of the Ash Meadows killifish (*Empetrichthys merriami*) and reduced or extirpated other native fish populations. Continued modification of habitat by construction activity can only exacerbate this problem.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Not applicable to these species.

C. *Disease or predation.* Numerous exotic organisms have been introduced into springs in Ash Meadows. Some of these exotics, including largemouth bass (*Micropterus salmoides*), crayfish (*Procambarus clarkii*), and bullfrogs (*Rana catesbeiana*) prey on the Ash Meadows Amargosa pupfish and the Ash Meadows speckled dace. Largemouth bass have been introduced into Crystal Reservoir and have subsequently gained access to Crystal Pool and its outflow. Crayfish and bullfrogs are common inhabitants in many springs and have significantly contributed to the decline of the Ash Meadows pupfish (La Rivers, 1962; Miller, 1948).

D. *The inadequacy of existing regulatory mechanisms.* No permanent regulations exist to protect the two species of fish included in this rule. The existing emergency regulations would have expired on September 2, 1983, if the present action had not been taken. The present status of the species under

Nevada State law is not felt to be adequate to counter the threats set out above to the species and their habitats.

E. Other natural or manmade factors affecting its continued existence. The extremely small range and specialized habitats of these species make them especially vulnerable to all of the factors that adversely affect them. Vandalism has been reported at a number of springs. Future acts of vandalism could cause the extinction of local populations of the fishes.

The Mexican mollie (*Poecilia mexicana*) and the mosquito fish (*Gambusia affinis*) have been introduced into several Ash Meadows spring systems including Point of Rocks, Jack Rabbit, Big, Bradford Springs, and Crystal Pool. These exotic fishes have replaced the pupfish and dace as the dominant species in the affected springs (Deacon *et al.*, 1964). Exotic snails have also become established in several springs, where they compete with native fishes for food.

Critical Habitat

50 CFR Part 424 defines "Critical Habitat" to include areas within the geographical area occupied by the species at the time the species is listed which are essential to the conservation of the species and which may require special management considerations or protection and specific areas outside the geographic area occupied by the species, upon a determination by the Secretary that such areas are essential for the conservation of the species.

Critical Habitat for the Ash Meadows speckled dace is as follows:

Nevada, Nye County: Each of the following springs and outflows plus surrounding land areas for a distance of 50 meters (164 feet) from the springs and outflows:

Bradford Springs in Section 11, T18S, R50E, and their outflows for a distance of 300 meters (984 feet) from the springs.

Jack Rabbit Spring and its outflows flowing southwest to the boundary between Section 24 in T18S, R50E and Section 19, T18S, R51E.

Big Spring and its outflow to the boundary between Section 19, T18S, R51E and Section 24, T18S, R50E.

Critical Habitat for the Ash Meadows Amargosa pupfish is as follows:

Nevada, Nye County: Each of the following springs and outflows plus surrounding land areas for a distance of 50 meters (164 feet) from these springs and outflows:

Fairbanks Spring and its outflow to the boundary between Sections 9 and 10, T17S, R50E.

Rogers Spring and its outflow to the boundary between Sections 15 and 16, T17S, R50E.

Longstreet Spring and its outflow to the boundary between Sections 15 and 22, T17S, R50E.

Three unnamed springs in the northwest corner of Section 23, T17S, R50E and each of their outflows for a distance of 75 meters (246 feet) from the springs.

Crystal Pool and its outflow for a distance of 400 meters (1,312 feet) from the pool.

Bradford Springs in Section 11, T18S, R50E, and their outflows for a distance of 300 meters (984 feet) from the springs.

Jack Rabbit Spring and its outflow flowing southwest to the boundary between Section 24, T18S, R50E and Section 19, T18S, R51E.

Big Spring and its outflow to the boundary between Section 19, T18S, R51E and Section 24, T18S, R50E.

Point of Rocks Springs and their entire outflows within Section 7, T18S, R51E.

These Critical Habitats include the springs and associated outflows that are the sole remaining habitat for these fishes. The Critical Habitats also include land areas immediately surrounding these aquatic areas. These land areas are essential to the conservation of the fishes because they provide vegetative cover that contributes to providing the uniform water conditions preferred by the pupfish and dace and provide habitat for insects and other invertebrates that constitute a substantial portion of their diet.

Activities that may adversely affect Critical Habitat include the activities carried out and planned by PEC that would modify the springs and their outflows, disturb the land areas immediately surrounding these habitats, or draw down the water table to the extent that spring flows are reduced and the fishes are harmed.

Listing these species as Endangered and designating their Critical Habitat does not specifically preclude in their entirety housing, commercial, intensive agricultural, or industrial development in Ash Meadows. Full protection of the two fish species may, however, preclude a portion of the proposed PEC development, and may result in the modification of PEC's construction activities. The Service notes that much of PEC's proposed development may already be precluded by the water requirements of two previously listed Endangered species, the Devil's Hole pupfish and the Warm Springs pupfish. The exact extent of possible water conflict is presently unknown.

The designated Critical Habitats include a total area of approximately

200 acres. Based on the best scientific and commercial data available, designation of smaller Critical Habitats might result in the extinction of the species. The Bureau of Land Management (BLM) has jurisdiction over two springs (Big and Jack Rabbit) that are included in these Critical Habitats. Present BLM activities are consistent with the conservation of these fishes and therefore will not be affected by this action.

Available Conservation Measures

Endangered species regulations already published in Title 50, Section 17.21 of the U.S. Code of Federal Regulations set forth a series of general prohibitions and exceptions that apply to all Endangered species. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the U.S. to take, import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale these species in interstate or foreign commerce. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife which was illegally taken. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving Endangered species under certain circumstances. Regulations governing permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, for enhancement of the propagation or survival of the species, or, in certain circumstances, for incidental taking of Endangered species. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship that would be suffered if such relief were not available.

This rule, by extending the protection provided by the emergency listing, could subject the construction activities of PEC to enforcement actions undertaken pursuant to Section 9 of the Endangered Species Act or a civil injunction should such development result in the taking of any of the fishes.

This rule requires Federal agencies not only to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the Ash Meadows Amargosa pupfish and the Ash Meadows speckled dace, but also requires them to ensure that their actions do not result in the destruction or adverse modification of Critical Habitats. Provisions for Interagency Cooperation are codified at 50 CFR Part 402.

National Environmental Policy Act

An Environmental Assessment has been prepared in conjunction with this final rule. Based on this Environmental Assessment, a determination has been made that this is not a major Federal action that would significantly affect the quality of the human environment within the meaning of Section 102(2)(C) of the National Environmental Policy Act of 1969 implemented at 40 CFR Parts 1500-1508.

Author

The primary author of this rule is Steven M. Chambers, Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (703/235-1975).

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List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife. Fish, Marine mammals, Plants (agriculture).

Regulations Promulgation

PART 17—[AMENDED]

Accordingly, Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below.

1. The authority citation for Part 17 reads as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; and Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531, *et seq.*).

2. Section 17.11(h), Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended by adding the following two entries alphabetically to the table under the heading "Fishes" as set forth below.

§ 17.11 [Amended]

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rule
Common name	Scientific name						
FISHES							
Dace, Ash Meadows speckled	<i>Rhinichthys osculus nevadensis</i>	U.S.A. (NV)	Entire	E		17.95(e)	NA
Pupfish, Ash Meadows Amargosa	<i>Cyprinodon nevadensis mon- ectes</i>	U.S.A. (NV)	Entire	E		17.95(e)	NA

3. It is further determined that § 17.95(e), Fishes, be amended by adding Critical Habitat of the Ash Meadows speckled dace after that of the spotfin chub as follows:

§ 17.95 [Amended]

Ash Meadows speckled dace

(*Rhinichthys osculus nevadensis*)

Nevada, Nye County: Each of the following springs and outflows plus surrounding land areas for a distance of 50 meters (164 feet) from these springs and outflows:

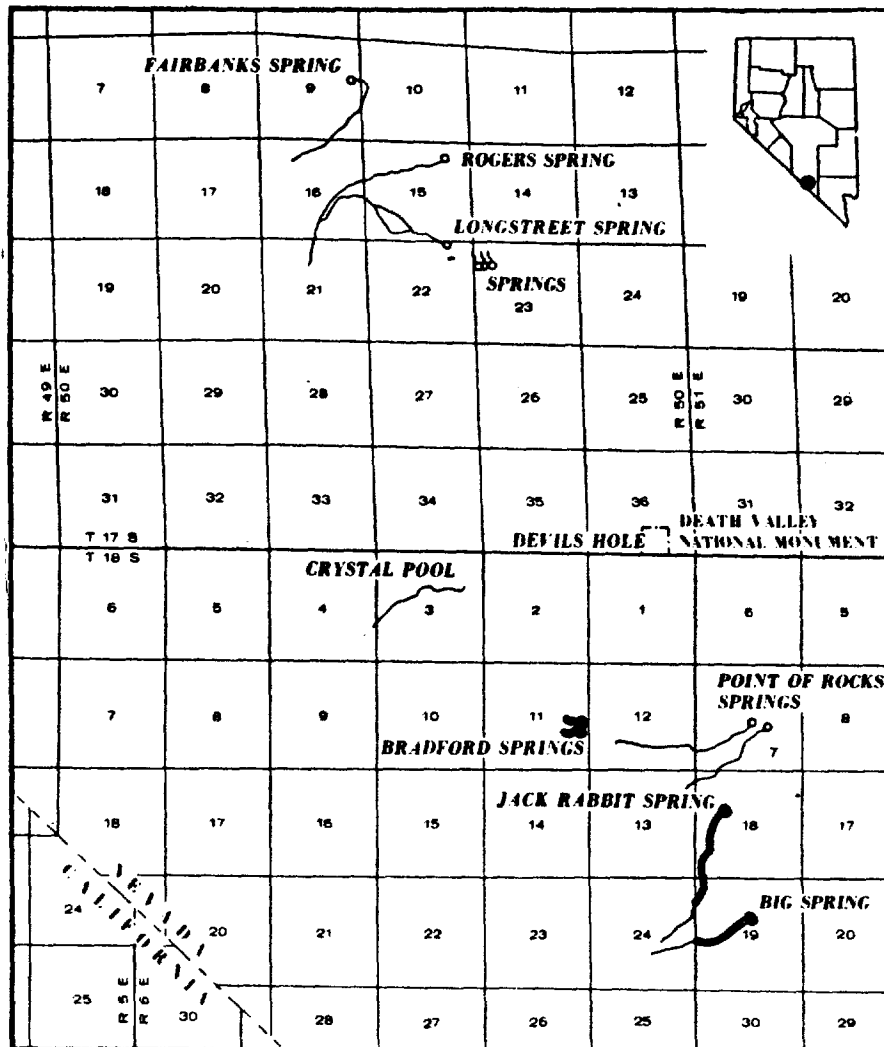
Bradford Springs in Section 11, T18S, R50E, and their outflows for a distance of 300 meters (984 feet) from the springs.

Jack Rabbit Spring and its outflow flowing southwest to the boundary between Section 24 in T18S, R50E and Section 19, T18S, R51E.

Big Spring and its outflow to the boundary between Section 19, T18S, R51E and Section 24, T18S, R50E.

ASH MEADOWS SPECKLED DACE

Nye County, NEVADA



Known constituent elements include warm-water springs and their outflows and surrounding land areas that provide vegetation for cover and habitat for insects and other invertebrates on which the species feeds.

* * * * *

4. It is further determined that § 17.95(e), Fishes, be amended by adding Critical Habitat of the Ash Meadows Amargosa pupfish after that of the leopard darter as follows:

* * * * *

Ash Meadows Amargosa pupfish
(*Cyprinodon nevadensis mionectes*)

Nevada, Nye County: Each of the following springs and outflows plus surrounding land areas for a distance of 50 meters (164 feet) from these springs and outflows:

Fairbanks Spring and its outflow to the boundary between Sections 9 and 10, T17S, R50E.

Rogers Spring and its outflows to the boundary between Sections 15 and 16, T17S, R50E.

Longstreet Spring and its outflow to the boundary between Sections 15 and 22, T17S, R50E.

Three unnamed springs in the northwest corner of Section 23, T17S, R50E, and each of their outflows for a distance of 75 meters (246 feet) from the spring.

Crystal Pool and its outflow for a distance of 400 meters (1,312 feet) from the pool.

Bradford Springs in Section 11, T18S, R50E, and their outflows for a distance of 300 meters (984 feet) from the springs.

Jack Rabbit Spring and its outflow

flowing southwest to the boundary
between Section 24, T18S, R50E and
Section 19, T18S, R51E.

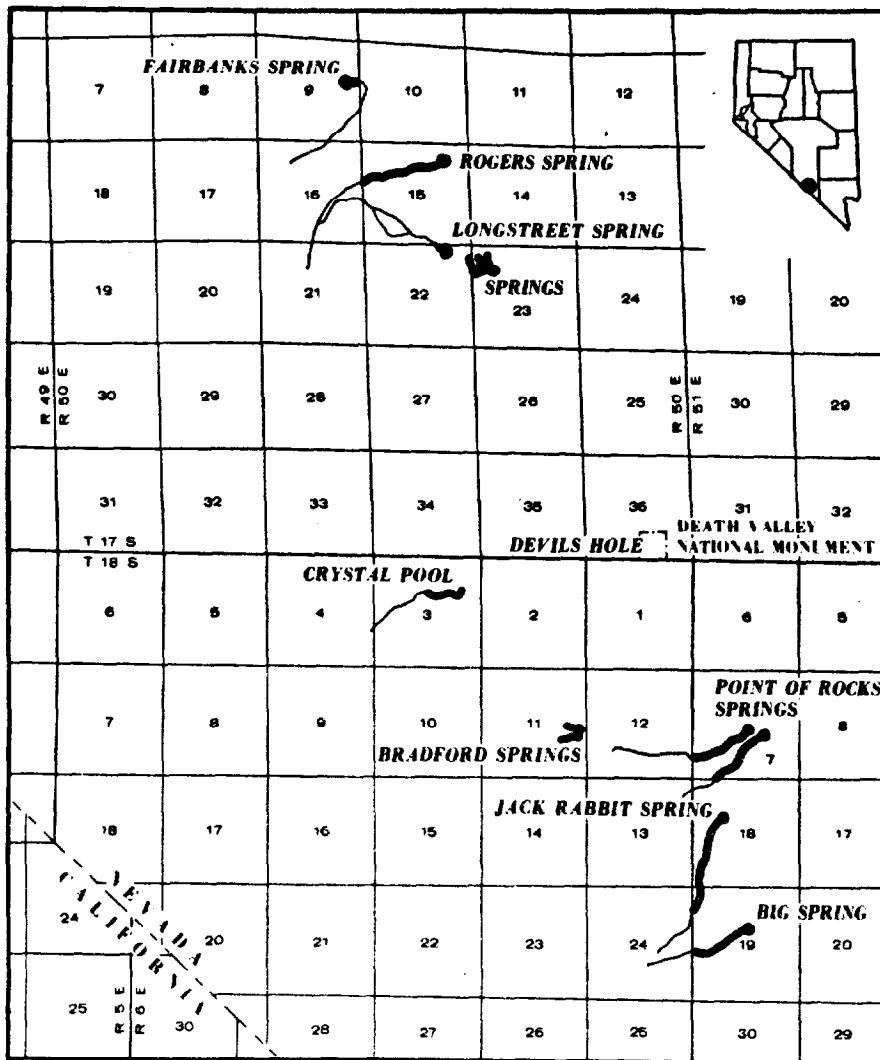
Big Spring and its outflow to the

boundary between Section 19, T18S,
R51E and Section 24, T18S, R50E.

Point of Rocks Springs and their entire
outflows within Section 7, T18S, R51E.

ASH MEADOWS AMARGOSA PUPFISH

Nye County, NEVADA



Known constituent elements include warm-water springs and their outflows and surrounding land areas that provide vegetation for cover and habitat for insects and other invertebrates on which this species feeds.

Dated: August 29, 1983.

G. Ray Arnett,

Assistant Secretary for Fish and Wildlife and Parks.

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